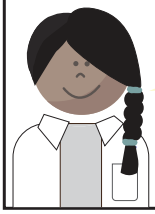
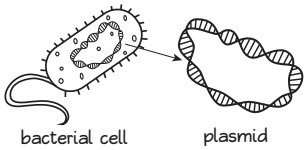
BacToMars

Hi, I'm Jamie, and I'm a bioengineer. I combine the study of microbiology (living things that are very, very small) with engineering. Let me give you a brief introduction to what I study and how I use it to solve real-world problems.

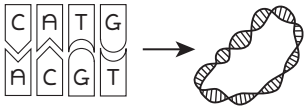


Microbiology is the study of tiny living things. They are so small, you can't see them with just your eyes! Bacteria, or germs as they're sometimes called, are some of the living things I study.



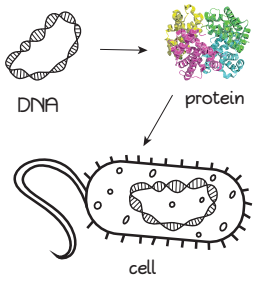
Bacteria are cells, or tiny units of life. The instructions for building these cells come from a material called DNA, stored in plasmids.

DNA contains the instructions for making a cell. These instructions are written in a special alphabet with only 4 letters.

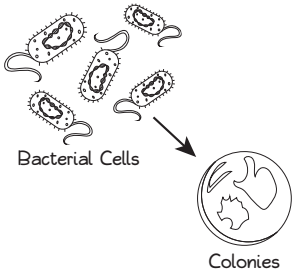


These four letters can be combined in many different ways, just like the letters in our alphabet can be combined to make words, sentences, and paragraphs.

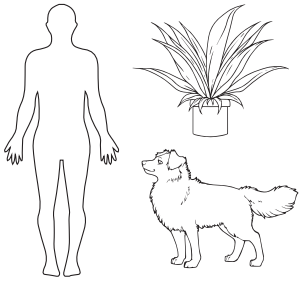
The instructions in DNA are used to create proteins, which are the building blocks of cells.



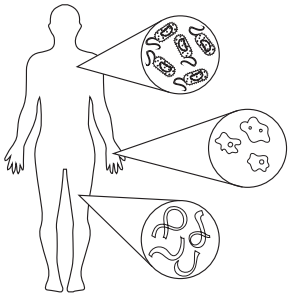
A large group of bacteria is called a colony. You can see bacterial colonies with your own eyes!



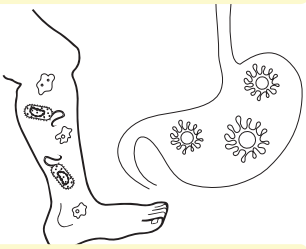
All living things - like plants, animals, and humans - are made of lots of cells that each have DNA.



Often, bacteria and other living things will work together and help each other survive.

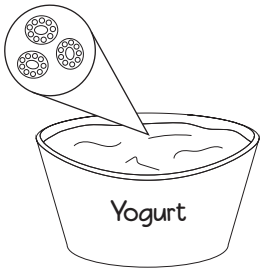


In the stomach, bacteria help the body to digest and process food.

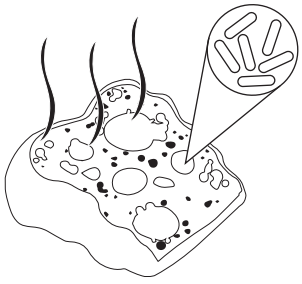


On the skin, good bacteria can help defend against germs that could make you sick.

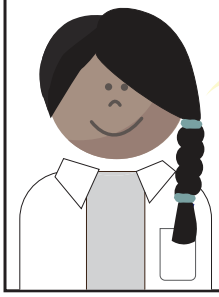
Bacteria are used to turn milk into yogurt. When you eat yogurt, you are eating live bacterial colonies that help you stay healthy!



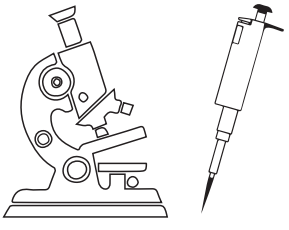
Bacteria are even used to make stinky cheeses!



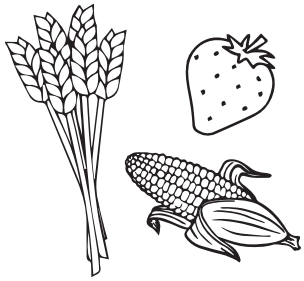
As a bioengineer, I research how we can change the DNA in bacteria to do useful things for us.



I use special tools to help me look at and study bacterial cells. I also change the DNA of bacteria to do useful things for humans.

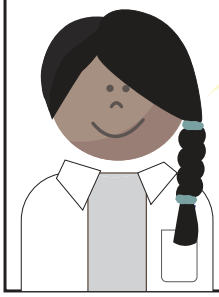


We can create crops that need less fertilizer and water and that have more nutrients.



We can also create bacteria that are useful in medicine - one type can produce insulin, which helps diabetic people process sugar.

Today, I need your help making bacteria to send to Mars to help our astronauts.



You'll be changing the DNA of bacteria to make things from other things.